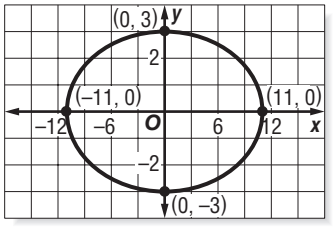
NAME _____ DATE _____ PERIOD _____

8-4 Practice

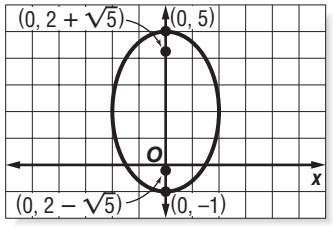
Ellipses

Write an equation for each ellipse.

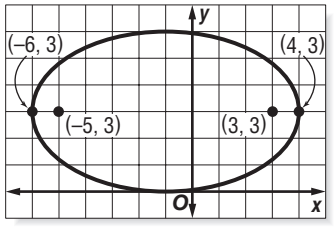
1.



2.



3.



Write an equation for the ellipse that satisfies each set of conditions.

4. endpoints of major axis at $(-9, 0)$ and $(9, 0)$, endpoints of minor axis at $(0, 3)$ and $(0, -3)$

5. endpoints of major axis at $(4, 2)$ and $(4, -8)$, endpoints of minor axis at $(1, -3)$ and $(7, -3)$

6. major axis 20 units long and parallel to x-axis, minor axis 10 units long, center at $(2, 1)$

7. major axis 10 units long, minor axis 6 units long and parallel to x-axis, center at $(2, -4)$

8. major axis 16 units long, center at $(0, 0)$, foci at $(0, 2\sqrt{15})$ and $(0, -2\sqrt{15})$

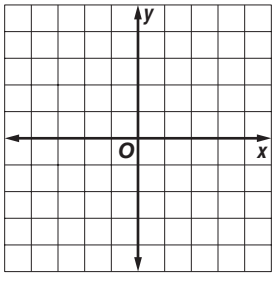
9. endpoints of minor axis at $(0, 2)$ and $(0, -2)$, foci at $(-4, 0)$ and $(4, 0)$

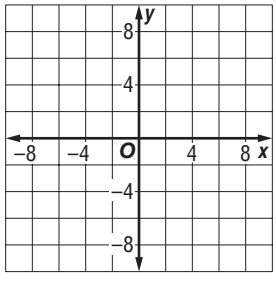
Find the coordinates of the center and foci and the lengths of the major and minor axes for the ellipse with the given equation. Then graph the ellipse.

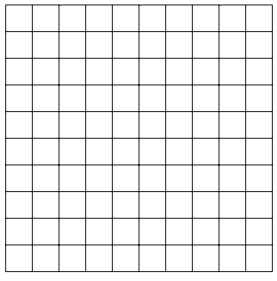
10. $\frac{y^2}{16} + \frac{x^2}{9} = 1$

11. $\frac{(y-1)^2}{36} + \frac{(x-3)^2}{1} = 1$

12. $\frac{(x+4)^2}{49} + \frac{(y+3)^2}{25} = 1$







13. SPORTS An ice skater traces two congruent ellipses to form a figure eight. Assume that the center of the first loop is at the origin, with the second loop to its right. Write an equation to model the first loop if its major axis (along the x-axis) is 12 feet long and its minor axis is 6 feet long. Write another equation to model the second loop.